Space Weather Forecast

Issued on Sunday, 26 March 2023 at 00:41 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of R1 Minor radio blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the past 24 hours, with occasional minor Common-class X-ray flares recorded. While there are eight sunspot regions on the visible disk only one is magnetically complex and this has reduced over the past 12 hours. The other regions are benign and simple at the moment.
No Earth-directed CMEs were observed in available satellite imagery.

Solar Wind / Geomagnetic Activity: Earth has connected with a negative coronal hole fast wind with speeds at elevated levels. The number of particles in the solar wind was average or just above average, while their associated magnetic field fell slightly from moderate to weak levels. The north-south component of the magnetic field was often negative, but became more variable and smaller-scale with time.
The net result of the above solar wind measures was for Quiet to Unsettled conditions with one Active interval.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is most likely to remain low, but with a chance of becoming moderate with any isolated Moderate-class flares. The main region likely to give such flares is the largest on the facing side in the southwest portion of the Sun.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs now feature in the forecast.
The only fast wind feature that should form part of the four-day forecast is now connected to Earth. Wind speeds are most likely to remain elevated on day 1 (26th), ahead of a slow decline from day 2 (27th).
Geomagnetic activity should peak early in the forecast period with Unsettled periods and a chance of Active, before becoming largely quiet once again from day 2 (27th) as the fast wind wanes.

Energetic Particles / Solar Radiation: No solar radiation storms are expected, however there remains a daily slight chance of reaching S1 or greater, should any significant flares occur from the large number of sunspots on the Sun at present.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	25	25	25
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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